

CLAIMS

1. A method for random access, comprising:

under a condition that a first terminal device fails in a random access procedure, determining, by the first terminal device, according to a condition for initiating the random access procedure, at least one parameter corresponding to the condition for initiating the random access procedure, wherein the at least one parameter comprises a first threshold corresponding to the condition for initiating the random access procedure, and the first threshold is used to determine first maximum waiting time before the first terminal device re-initiates the random access procedure triggered by the condition;

determining, by the first terminal device, according to the at least one parameter, backoff time before re-initiating the random access procedure; and

re-initiating, by the first terminal device, the random access procedure according to the backoff time.

2. The method of claim 1, wherein the at least one parameter further comprises a first probability corresponding to the condition for initiating the random access procedure, wherein the first probability is to indicate a probability that the backoff time is less than second maximum waiting time before the random access procedure triggered by the condition is re-initiated.

3. The method of claim 1 or 2, further comprising:

receiving, by the first terminal device, a backoff indication parameter sent by a network device, wherein maximum waiting time before at least one terminal device re-initiates a random access procedure is indicated by the backoff indication parameter, and the at least one terminal device comprises the first terminal device; and

determining, by the first terminal device, the backoff time according to at least one parameter comprises:

determining, by the first terminal device, the backoff time according to the backoff indication parameter and the first threshold or according to the backoff indication parameter, the first threshold and the first probability.

4. The method of claim 3, wherein determining, by the first terminal device, the backoff time according to the backoff indication parameter and the first threshold comprises:

randomly determining, by the first terminal device, a first duration within the maximum waiting time indicated by the backoff indication parameter; and

responsive to that the first duration is greater than a duration corresponding to the first threshold, randomly determining, by the first terminal device, the backoff time within the duration corresponding to the first threshold.

5. The method of claim 3, wherein determining, by the first terminal device, the backoff time according to the backoff indication parameter and the first threshold comprises:

responsive to that the maximum waiting time indicated by the backoff indication parameter is greater than or equal to a duration corresponding to the first threshold, randomly determining, by the first terminal device, the backoff time within the duration corresponding to the first threshold; and

responsive to that the maximum waiting time indicated by the backoff indication parameter is less than the duration corresponding to the first threshold, randomly determining, by the first terminal device, the backoff time within the maximum waiting time indicated by the backoff indication parameter.

6. The method of claim 3, wherein the second maximum waiting time is less than the maximum waiting time indicated by the backoff indication parameter.

7. The method of claim 6, wherein determining, by the first terminal device, the backoff time according to the backoff indication parameter, the first threshold and the first probability comprises:

randomly determining, by the first terminal device, a second duration according to the backoff indication parameter and the first probability; and

responsive to that the second duration is greater than the second maximum waiting time and a duration corresponding to the first threshold, randomly determining, by the first terminal, the backoff time within the duration corresponding to the first threshold.

8. The method of any one of claims 1 to 7, further comprising:

receiving, by the first terminal device, configuration information sent by the network device, wherein the configuration information comprises one-to-one correspondences between a plurality of conditions for initiating random access procedures and a plurality of thresholds, and the plurality of conditions for initiating the random access procedures comprises the condition for initiating the random access procedure.

9. The method of any one of claims 1 to 8, further comprising:

responsive to that a preamble sequence sent by the first terminal device to a network device is absent in a random access response, determining that the first terminal device fails in the random access procedure; or

responsive to that a contention resolution failure is declared in a collision resolution response, determining that the first terminal device fails in the random access procedure.

10. A terminal device for random access, the terminal device being a first terminal device and comprising:

a determination module comprising a first determination unit, configured to: under a condition that the first terminal device fails in a random access procedure, determine, according to a condition for initiating the random access procedure, at least one parameter corresponding to the condition for initiating the random access procedure, wherein the at least one parameter comprises a first threshold corresponding to the condition for initiating the random access procedure, and the first threshold is used to determine first maximum waiting time before the first terminal device re-initiates the random access procedure triggered by the condition;

the determination module comprising a second determination unit, configured to determine, according to the at least one parameter, backoff time before re-initiating the random access procedure; and

a communication module, configured to re-initiate the random access procedure according to the backoff time.

11. The terminal device of claim 10, wherein the at least one parameter further comprises a first probability corresponding to the condition for initiating the random access procedure, wherein the first probability is to indicate a probability that the backoff time is less than second maximum waiting time before the random access procedure triggered by the condition is re-initiated.

12. The terminal device of claim 10 or 11, further comprising a receiving module, wherein

the receiving module is configured to receive a backoff indication parameter sent by a network device, wherein maximum waiting time before at least one terminal device re-initiates a random access procedure is indicated by the backoff indication parameter, and the at least one terminal device comprises the first terminal device; and

the second determination unit is configured to determine the backoff time according to the backoff indication parameter and the first threshold or according to the backoff indication parameter, the first threshold and the first probability.

13. The terminal device of claim 12, wherein the second determination unit is configured to:

randomly determine a first duration within the maximum waiting time indicated by the backoff indication parameter; and

randomly determine, responsive to that the first duration is greater than a duration corresponding to the first threshold, the backoff time within the duration corresponding to the first threshold.

14. The terminal device of claim 12, wherein the second determination unit is configured to:

randomly determine, responsive to that the maximum waiting time indicated by the backoff indication parameter is greater than or equal to a duration corresponding to the first threshold, the backoff time within the duration corresponding to the first threshold; and

randomly determine, responsive to that the maximum waiting time indicated by the backoff indication parameter is less than the duration corresponding to the first threshold, the backoff time within the maximum waiting time indicated by the backoff

indication parameter.

15. The terminal device of claim 12, wherein the second maximum waiting time is less than the maximum waiting time indicated by the backoff indication parameter.

16. The terminal device of claim 15, wherein the second determination unit is configured to:

randomly determine a second duration according to the backoff indication parameter and the first probability; and

randomly determine, responsive to that the second duration is greater than the second maximum waiting time and a duration corresponding to the first threshold, the backoff time within the duration corresponding to the first threshold.

17. The terminal device of any one of claims 10 to 16, wherein the receiving module is further configured to:

receive configuration information sent by the network device, wherein the configuration information comprises one-to-one correspondences between a plurality of conditions for initiating random access procedures and a plurality of thresholds, and the plurality of conditions for initiating the random access procedures comprises the condition for initiating the random access procedure.

18. The terminal device of any one of claims 10 to 17, the determination module is further configured to:

responsive to that a preamble sequence sent by the first terminal device to a network device is absent in a random access response, determine that the first terminal device fails in the random access procedure; or

responsive to that a contention resolution failure is declared in a collision resolution response, determine that the first terminal device fails in the random access procedure.

19. A terminal device, comprising: a processor and a memory, wherein

the memory is configured to store instructions; and

the processor is configured to execute the instructions stored in the memory to

perform a method for random access, the method comprising:

under a condition that a first terminal device fails in a random access procedure, determining, by the first terminal device, according to a condition for initiating the random access procedure, at least one parameter corresponding to the condition for initiating the random access procedure, wherein the at least one parameter comprises a first threshold corresponding to the condition for initiating the random access procedure, and the first threshold is used to determine first maximum waiting time before the first terminal device re-initiates the random access procedure triggered by the condition;

determining, by the first terminal device, according to the at least one parameter, backoff time before re-initiating the random access procedure; and

re-initiating, by the first terminal device, the random access procedure according to the backoff time.

20. A non-transitory computer storage medium having stored thereon computer instructions, that when executed by a processor, cause the processor to perform the method for random access according to any one of claims 1 to 9.